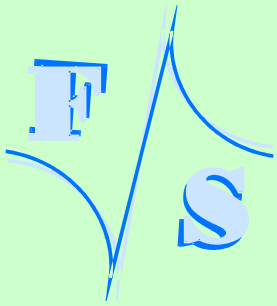
Hardware documentation

Version 1.00
(2012-11-13)

PicoMOD-Startintf



About This Document

This document describes how to use the PicoMOD-Startintf with mechanical and electrical information. The latest version of this document can be found at http://www.fs-net.de.

History

Date	V	Platform	A,M,R	Chapter	Description	Au
2011-09-26	0.01				Initial release	DB
2011-12-15	0.02				Minor changes	DB
2011-02-02	0.03			2	Added dimension figure	
2011-10-02	0.99				Swapped COM1 and COM3	DB
2011-11-12	1.00		A	4.9	Added connector part number	DB

V	Version
A,M,R	Added, Modified, Removed
Au	Author

Table of Contents

1 Introduction

The PicoMOD-Startintf is a base board for the PicoMOD SBC family. It can be used with PicoMOD3/4/6/7. For connection to a display it has a module connector and five different modules.

Depending on the ordered PicoMOD not all modules are delivered.

2 Dimensions

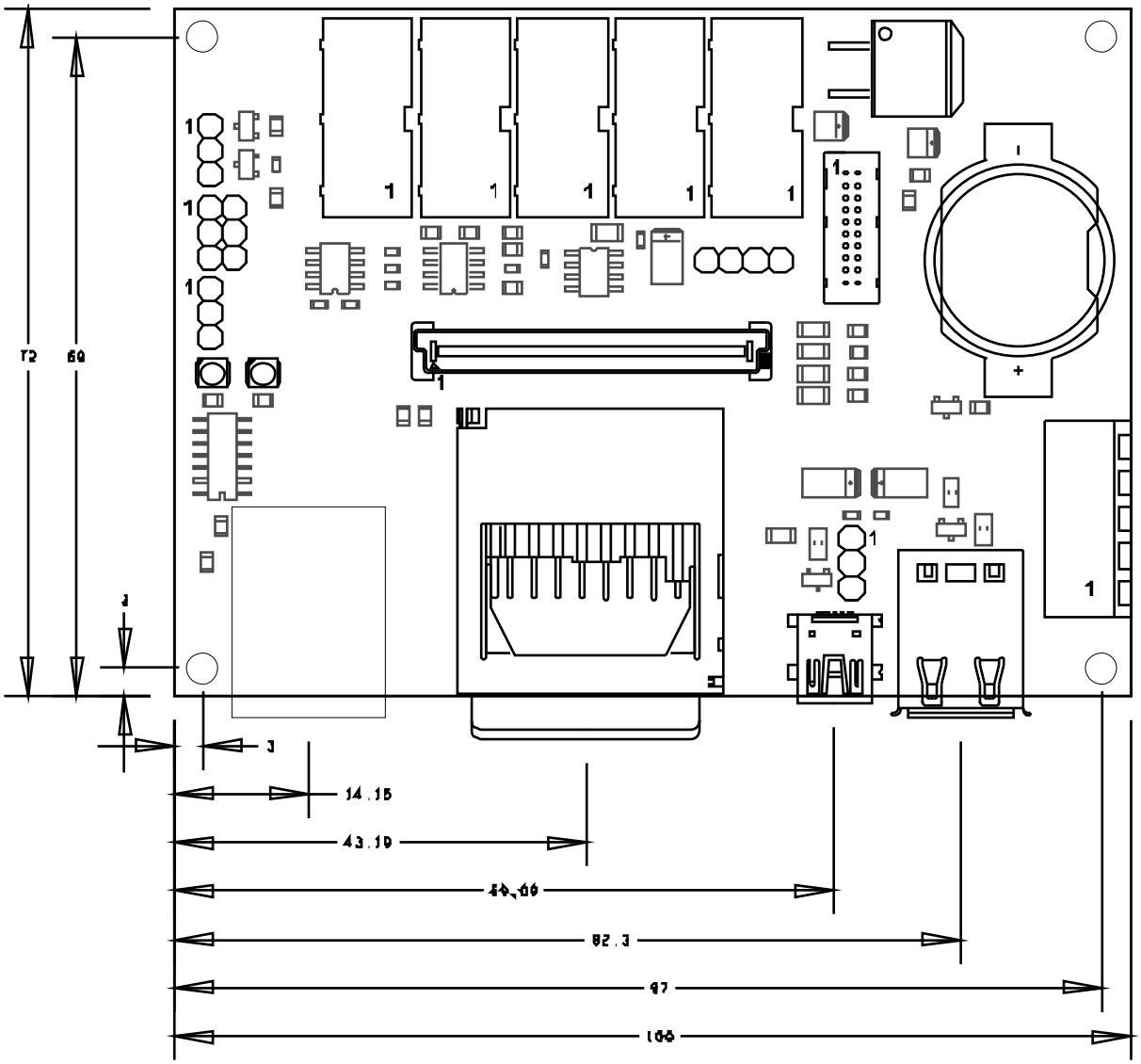


Figure 1: Dimension

2.1 Baseboard

PCB size:	100mm x 72mm (PicoITX form factor)
PCB thickness:	1.6 ±0.1 mm
Height of parts on top side:	14 mm
Height of parts on bottom side (without connectors):	3 mm
Height of parts on bottom side (with PicoMOD):	10 mm
Weight:	TBD

2.2 Modules

Size:	40mm x 40mm (45mm x 40mm for Legacy LCD)
PCB thickness:	1.6 ±0.1 mm
Height of parts on top side: (without connectors)	2 mm
Weight:	TBD

3 Technical Data

Power supply:	5V DC ±5%
Interfaces:	1x Ethernet 10/100Mbit
	3x USB 2.0 Host (USB 1.1 with PicoMOD3/4/6)
	1x USB 2.0 Device
	1x CAN 2.0
	1x SD card
	2x serial port
	1x 4wire touch
	1x F&S feature connector
	1x serial port
	1x USB Host
	1x SPI
	1x I2C
	1x Line Out stereo
	1x Line In stereo
	1x microphone
	1x switched backlight supply with PWM
	1x display module connector
Display Modules:	Legacy (for old F&S display adapters)
	EDT
	Hitachi
	HDMI (PicoMOD7 only)
	Camera (PicoMOD7 only, on request only)
Operating temperature:	0°C...+70°C

4 Connector Description and Pin Assignment

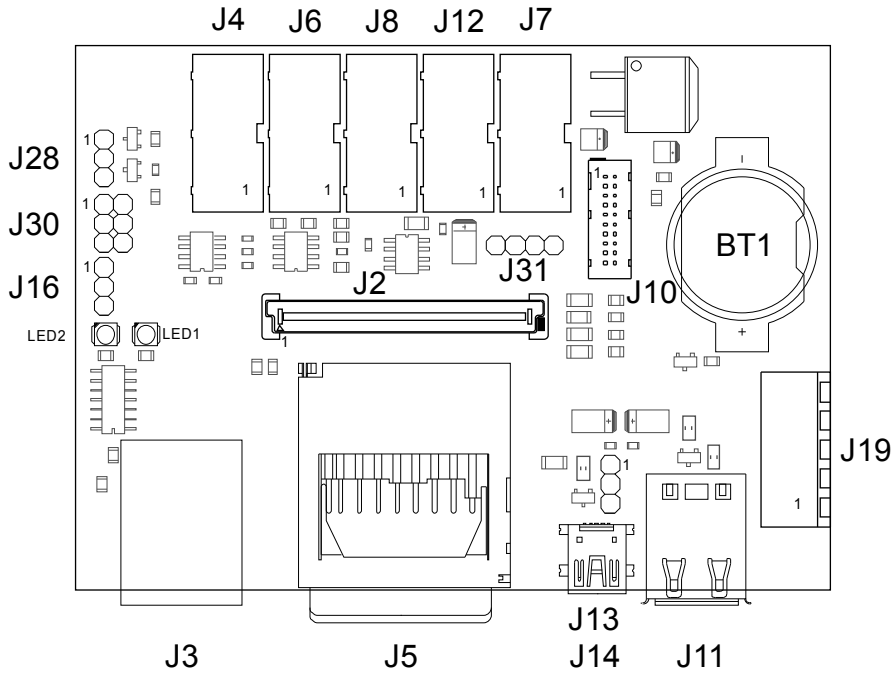


Figure 2: Top View

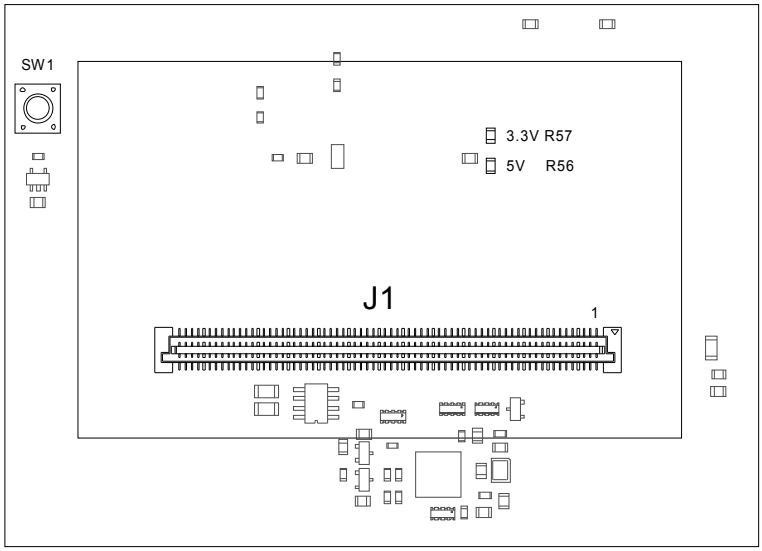


Figure 3: Bottom View

4.1 J1 PicoMOD

The PicoMOD is plugged on this connector.

The connector is a Tyco 0.8mm Free Height (FH) Connector part-no. 5177983-6 for 5mm stacking height. For other stacking heights see Tyco connector documentation.

See PicoMOD documentation for more information.

The connector row gives the connectors where the signal is used. Connectors in parentheses indicate that the signal is not directly connected but used for signals on this connector.

All signals have 3.3V level and 2mA current except where noted.

J1			
Pin	Use on base board	Remarks	Connector
1	SPI CS		J10
2	SPI CLK		J10
3	SPI MISO		J10
4	SPI MOSI		J10
5	CAN TX		(J8)
6	CAN RX		(J8)
7	Ethernet RX-		(J3)
8	Ethernet TX-		(J3)
9	Ethernet RX+		(J3)
10	Ethernet TX+		(J3)
11	+3.3V Power		
12	+3.3V Power		
13	GND		
14	GND		
15	nRESET	Reset generator required	J2
16	VBAT	If voltage is higher than on pin 11/12 RTC is always powered from this pin	J19
17	COM2 TXD		J10
18	COM2 RXD		J10

J1			
Pin	Use on base board	Remarks	Connector
19	COM2 RTS		J10
20	COM2 CTS		J10
21	COM3 TXD		(J4)
22	COM3 RXD		(J4)
23	COM1 TXD		(J6)
24	COM1 RXD		(J6)
25	USB Device DN		(J14)
26	USB Host DN		(J10, J11, J12)
27	USB Device DP		(J14)
28	USB Host DP		(J10, J11, J12)
29	GPIO 5		J2
30	USB Host Power On		(J10, J11, J12)
31	I2C SDA		J2
32	USB Device Detect	See PicoMOD manual for voltage level	(J14)
33	GPIO 7		J2
34	I2C SCL		J2
35	BOOTSEL0	Leave open for normal operation	J30
36	GPIO 8		J2, J10
37	LVDS boot prevention	Connect to nRESET to prevent operation of LVDS version of PicoMOD. Leave open if in doubt.	
38	BOOTSEL2	Leave open for normal operation	J30
39	GND		
40	GND		
41	GPIO 1		J2
42	GPIO 0		J2
43	GPIO 3		J2
44	GPIO 2		J2
45	SD CLK		J5

J1			
Pin	Use on base board	Remarks	Connector
46	GPIO 4		J2
47	SD DAT0		J5
48	SD CMD		J5
49	SD DAT2		J5
50	SD DAT1		J5
51	SD nCD	Pull-down to GND if socket without card detect is used	J5
52	SD DAT3		J5
53	SD nWP	Pull-up to +3.3V if socket without write protect is used	J5
54	GPIO 6		(J5)
55	LCD DEN		J2
56	LCD ENA		J2
57	LCD VCFLON		J2, (J28)
58	LCD VLCDON		J2
59	GND		
60	LCD PWM		J2, J28
61	LCD G0		J2
62	GND		
63	LCD B0		J2
64	LCD G1 / TMDS D2P		J2
65	LCD B2		J2
66	LCD B1 / TMDS D2N		J2
67	LCD B4		J2
68	LCD B3 / TMDS D1P		J2
69	LCD G2		J2
70	LCD B5 / TMDS D1N		J2
71	LCD G4		J2

J1			
Pin	Use on base board	Remarks	Connector
72	LCD G3 / TMDS D0P		J2
73	LCD R0		J2
74	LCD G5 / TMDS D0N		J2
75	LCD R2		J2
76	LCD R1 / TMDS CP		J2
77	LCD R4		J2
78	LCD R3 / TMDS CN		J2
79	LCD HSYNC		J2
80	LCD R5		J2
81	LCD DE		J2
82	LCD VSYNC		J2
83	GND		
84	GND		
85	GND		
86	LCD CLK		J2
87	-	Not used on baseboard	
...		Not used on baseboard	
127	-	Not used on baseboard	
128	Eth Link/Activity LED	2mA max.	
129	Status LED 1	2mA max.	
130	Status LED 2	2mA max.	
131	Line Out Left		J7
132	Line Out Right		J7
133	Line In Left		J7
134	Line In Right		J7
135	Microphone In		J7
136	Microphone Bias		J7

J1			
Pin	Use on base board	Remarks	Connector
137	Touch X+		J2, (J31)
138	Touch X-		J2, (J31)
139	Touch Y+		J2, (J31)
140	Touch Y-		J2, (J31)

Table1: PicoMOD Connector

4.2 J2 Display Module

The Display Module is plugged on this connector.

The connector is a Tyco 0.8mm Free Height (FH) Connector.

Part-no. 5177983-3 for 5mm stacking height. For other stacking heights see Tyco connector documentation.

For the LVDS version of the PicoMOD you can use the HDMI and camera modules. For the digital RGB version you can use the Hitachi, EDT, and legacy modules. The legacy module provides compatibility to the NetDCU display connector.

J2			
Pin	LVDS version	Parallel version	Remarks
1	-	DEN	
2	GND	GND	
3	-	ENA	
4	+V5	+V5	
5	-	VCFLON	
6	+V5	+V5	
7	VCAM (input)	VLCDON	VCAM sets I/O voltage for camera interface
8	+V5	+V5	
9	PWM	PWM	
10	+V3.3	+V3.3	Do not use as supply voltage for display and backlight. Use +V5 and regulator instead.

J2			
Pin	LVDS version	Parallel version	Remarks
11	GND	GND	
12	VCFL	VCFL	Directly from J19
13	TMDS_D2P	G1	
14	VCFL	VCFL	
15	TMDS_D2N	B1	
16	GND	GND	
17	GND	GND	
18	GND	GND	
19	TMDS_D1P	B3	
20	GND	GND	
21	TMDS_D1N	B5	
22	NC	NC	
23	GND	GND	
24	NC	NC	
25	TMDS_D0P	G3	
26	NC	NC	
27	TMDS_D0N	G5	
28	NC	NC	
29	GND	GND	
30	NC	NC	
31	TMDS_CP	R1	
32	NC	NC	
33	TMDS_CN	R3	
34	NC	NC	
35	GND	GND	
36	NC	NC	
37	CAM_DATA3	B4	
38	NC	NC	
39	CAM_DATA2	B2	
40	NC	NC	

J2			
Pin	LVDS version	Parallel version	Remarks
41	CAM_DATA1	B0	
42	NC	NC	
43	CAM_DATA5	G4	
44	NC	NC	
45	CAM_DATA4	G2	
46	NC	NC	
47	GND	GND	
48	NC	NC	
49	CAM_DATA0	G0	
50	NC	NC	
51	CAM_RESET	R5	
52	NC	NC	
53	CAM_MCLK	R4	
54	nRESET	nRESET	
55	CAM_DATA7	R2	
56	HDMI_SCL	GPIO0 (INT)	
57	CAM_DATA6	R0	
58	CAM_SCL	GPIO1	
59	GND	GND	
60	HDMI_SDA	GPIO2	
61	CAM_PCLK	CLK	
62	CAM_SDA	GPIO3	
63	GND	GND	
64	I2C SDA	I2C SDA	2k2 pull-up on starterkit
65	CAM_FIELD	DE	
66	I2C SCL	I2C SCL	2k2 pull-up on starterkit
67	CAM_HREF	HSYNC	
68	HDMI_HP	GPIO4	
69	CAM_VSYNC	VSYNC	
70	GPIO5	GPIO5	

J2			
Pin	LVDS version	Parallel version	Remarks
71	GND	GND	
72	GPIO7	GPIO7	
73	TOUCH X+	TOUCH X+	Also on J31, with 10nF filter capacitor
74	GPIO8	GPIO8	Also used on J10
75	TOUCH Y+	TOUCH Y+	Also on J31, with 10nF filter capacitor
76	SHIELD GND	SHIELD GND	
77	TOUCH X-	TOUCH X-	Also on J31, with 10nF filter capacitor
78	SHIELD GND	SHIELD GND	
79	TOUCH X+	TOUCH X+	Also on J31, with 10nF filter capacitor
80	SHIELD GND	SHIELD GND	

Table 2: J2 Display Module

4.3 J3 Ethernet

Standard 100BASE-TX ethernet connector with integrated magnetics., Auto-MDI(X) capable. Green LED is combined link and activity indicator, yellow LED is not used.

4.4 J4 Serial Port COM3

Connects to standard 9pin D-Sub bracket for serial ports.

J4		
Pin	Function	Remarks
1	NC	
2	NC	
3	RXD	RS232 level
4	NC	
5	TXD	RS232 level
6	NC	
7	NC	
8	NC	
9	GND	
10	+V5	1.1A polyfuse

Table 3: J4 Serial Port COM3

4.5 J5 SDCard

SD Card slot for standard size SD Cards with card detect and write protect switches.
Power can either be switched by PicoMOD or statically supplied. See 4.16.2 for details.

4.6 J6 Serial Port COM1

Connects to standard 9pin D-Sub bracket for serial ports.

J6		
Pin	Function	Remarks
1	NC	
2	NC	
3	RXD	RS232 level
4	NC	
5	TXD	RS232 level
6	NC	
7	NC	
8	NC	
9	GND	
10	+V5	1.1A polyfuse

Table 4: J6 Serial Port COM1

4.7 J7 Audio

J7		
Pin	Function	Remarks
1	MICIN	
2	GND	
3	MICBIAS	
4	GND	
5	OUT R	
6	IN R	
7	NC	
8	NC	
9	OUT L	
10	IN L	

Table 5: J7 Audio

4.8 J8 CAN

J8		
Pin	Function	Remarks
1	+V5 (+V3.3)	1.1A polyfuse, connected to pin 8
2	GND	
3	CANL	120R termination resistor on starterkit
4	CANH	120R termination resistor on starterkit
5	GND	
6	NC	
7	NC	
8	+V5 (+V3.3)	1.1A polyfuse, connected to pin 1
9	NC	
10	NC	

Table 6: J8 CAN

Voltage on pin 1 and 8 can be set with 0R resistors R56/R57 on starterkit. Default voltage is 5V

4.9 J10 Expansion Interface

J10 is a Tyco Electronics AMOMODU 50/50 Grid Connector Part Number 5-104693-2.

See www.te.com for mating connectors.

J10		
Pin	Function	Remarks
1	+V5	
2	+V5	
3	USB N	
4	I2C SDA	2k2 pull-up to +V3.3 on starterkit
5	USB P	
6	I2C SCL	2k2 pull-up to +V3.3 on starterkit
7	+V3.3	
8	+V3.3	
9	COM2 TXD	
10	SPI MOSI0	
11	COM2 RXD	
12	SPI MISO0	
13	COM2 CTS	
14	SPI CLK0	
15	COM2 RTS	
16	SPI CS0	
17	nRESET	
18	GPIO8	
19	GND	
20	GND	

Table 7: J10 Expansion Interface

All signals except USB have 3.3V level

4.10 J11 USB Host

Stacked standard USB-A connector.

4.11 J12 USB Host

Connects to standard USB bracket.

J12		
Pin	Function	Remarks
1	USB VBUS	500mA max.
2	NC	
3	USB N	
4	NC	
5	USB P	
6	NC	
7	GND	
8	NC	
9	NC	
10	NC	

Table 8: J12 USB Host

4.12 J14 USB Device

See chapter 4.16.1 for setting the correct voltage. Incorrect setting can damage the Pico-MOD!

Standard Mini-USB-B connector for USB device. ID pin not connected.

4.13 J19 Power

Power is supplied over this connector. +V3.3 is an output if +V5 is supplied.
It is not recommended to use +V3.3 as input although it is possible if +V5 is not connected. All devices powered from +V5 will not work when +V3.3 is an input(USB Host power, USB Device detection with 5V, power on serial port connectors, power on CAN connector, power on display adapters).
Maximum current on +V3.3 rail must not exceed 1.5A, this is the maximum current of the on board regulator. Maximum current on +V3.3 output is 1.5A minus current consumption of PicoMOD, base board, and display adapter.

Maximum voltage on VCFL depends on used module. See module description for allowed voltage.

VBAT is an input if no battery is installed on the starterkit. If a battery is installed it can be input and output, the battery is protected by a diode.
It is not recommended to use VBAT as input with a battery installed.

J19			
Pin	Function	Direction	Remarks
1	VCFL	in	20V max
2	VBAT	in/out	3.3V max
3	+V5	in	5V ±5% input
4	GND		
5	+V3.3V	out (in)	

Table 9: J19 Power

4.14 J28 VCFL

The backlight power for the PicoMODs with LVDS on board is on this connector. It is supplied from VCFL on connector J19 and switched with a MOSFET. On pin 2 a PWM signal is available for backlight dimming.
See display driver documentation for details on backlight switching and PWM frequency.

Maximum input voltage on J19 is 20V, minimum is 5V.
Maximum current is 2A.

J28		
Pin	Function	Remarks
1	VCFL	VCFL from J19 switched by VCFLON (>5V required), 2A max.
2	PWM	3.3V, use RC filter for 0-3.3V analog voltage
3	GND	

Table 10: J28 VCFL

4.15 J31 Touch

You can connect a standard 4-wire resistive touch panel with this connector.
The signal is filtered with ferrite beads and capacitors. The values of the components depend on your requirements on touch accuracy, touch speed, EMC, and ESD. See also touch driver documentation for software configuration.
For ESD protection low capacitance protection diodes are recommended (like for USB).

J31		
Pin	Function	Remarks
1	TOUCH X+	Ferrite bead and 10nF capacitor on starterkit
2	TOUCH Y+	Ferrite bead and 10nF capacitor on starterkit
3	TOUCH X-	Ferrite bead and 10nF capacitor on starterkit
4	TOUCH Y-	Ferrite bead and 10nF capacitor on starterkit

Table 11: J31 Touch

4.16 Configuration Options

4.16.1 J13 USB Device Voltage

The voltage on the USB Device detect pin can be configured with this jumper.
For PicoMOD3/4 it must be set to 3.3V, for PicoMOD6/7 it must be set to 5V.
Incorrect setting can damage the PicoMOD!
See PicoMOD hardware documentation for the correct voltage.

Connection	Setting
1-2	Voltage to PicoMOD is 5V
2-3	Voltage to PicoMOD is 3.3V

Table 12: USB Device Voltage Setting

4.16.2 J16 SDCard Voltage

This jumper controls the power to the SD card. It can be set to power control by PicoMOD or always powered.
Default setting is power control by PicoMOD.

Connection	Setting
1-2	Voltage controlled by PicoMOD
2-3	Voltage always on

Table 13: SDCard Voltage Setting

4.16.3 J30 Bootsel

This jumper is only used for production. Do not use in your circuit. The usage of the BOOT-SEL pins is different on each PicoMOD and can be changed without notice.

5 Display Modules

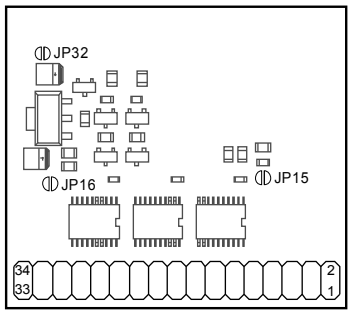
5.1 Legacy LCD Module

The Legacy LCD Module provides compatibility to the NetDCU LCD interface standard.
You cannot use this module with a PicoMOD with on-board LVDS interface.
LCD voltage is set with jumpers J15/J16/J32.
Maximum VCFL input voltage on J19 is 20V, minimum is 5V. Maximum current is 2A
LCD buffers are normally 74AHC245, they can be replaced with 74LVC8T245 or series resistance. See schematic for details.

J22		
Pin	Function	Remarks
1	GND	
2	R1	
3	R0	Red LSB
4	G5	Green MSB
5	G3	
6	G3	
7	G2	
8	GND	
9	B3	
10	B2	
11	B1	
12	B0	Blue LSB
13	G1	
14	G0	Green LSB
15	B5	Blue MSB
16	B4	
17	GND	
18	VEEK	0-3.3V analog voltage, remove capacitor C?? for PWM signal
19	CLK	
20	VSYNC	
21	DE	

J22		
Pin	Function	Remarks
22	HSYNC	
23	DEN	
24	GND	
25	VLCD	
26	NC	
27	NC	
28	GND	
29	NC	
30	VCFL	VCFL from J19 switched by VCFLON (>5V required), 2A max.
31	R2	
32	R3	
33	R4	
34	R5	Red MSB

Table 14: Legacy LCD Module



J22

Figure 4: Legacy LCD Module

Set only one jumper!

Jumper	Setting
JP15	Buffer supplied with +3.3V, default setting
JP16	Buffer supplied with VLCD, use only with 74LVC8T245, VLCD supplied from IC11
JP32	Buffer supplied with +5V

5.2 Hitachi LCD Module

You can connect many Hitachi LCDs with this module. You can find a list with possible displays and configurations in Table 17.
You cannot use this module with a PicoMOD with on-board LVDS interface.
Maximum VCFL input voltage on J19 is 20V, minimum is 5V.

J20		
Pin	Function	Remarks
1	VLCD	
2	VLCD	
3	VLCD/GND	JP1/JP2
4	VLCD/GND	JP3/JP4
5	NC	
6	DE	
7	GND	
8	CLK	JP5
9	GND	
10	NC	
11	GND	
12	B5	
13	B4	
14	B3	
15	GND	
16	B2	
17	B1	
18	B0	
19	GND	
20	G5	
21	G4	
22	G3	
23	GND	
24	G2	

J20		
Pin	Function	Remarks
25	G1	
26	G0	
27	GND	
28	R5	
29	R4	
30	R3	
31	GND	
32	R2	
33	R1	
34	R0	
35	VLCD	JP6
36	GND	
37	X+/GND	JP7/JP8
38	Y+/CLK	JP9/JP10
39	X-/GND	JP11/JP12
40	Y-/GND	JP13/JP14

Table 15: J20 Display Connector Hitachi LCD Module

J27		
Pin	Function	Remarks
1	VCFL	Min. 5V, max. 20V, switched from VCFL on J19
2	PWM	
3	GND	

Tabelle 16: J27 VCFL Hitachi LCD Module

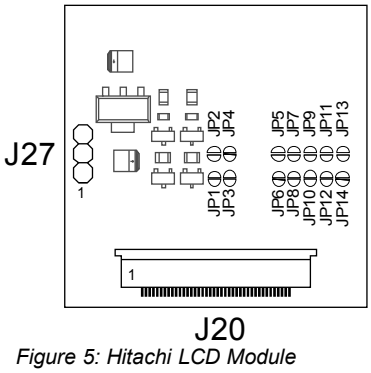


Figure 5: Hitachi LCD Module

Display	JP 1	JP2	JP3	JP4	JP5	JP6	JP7/JP9/JP11/JP13	JP8/JP10/JP12/JP14
TX14D11	x	-	x	-	x		*	-
TX14D12	x	-	x	-	x		*	-
TX14D14	**	**	**	**	x	x	*	-
TX14D17	**	**	**	**	x	x	*	-
TX16D11	x	-	x	-	x		*	-
TX18D16	x	-	x	-	-		-	x
TX18D35					x		*	-
TX18D57	x	-	x	-	-		-	x
TX20D16	x	-	x	-	-		-	x
TX20D17	x	-	x	-	-		-	x
TX23D12	x	-	x	-	-		-	x
TX31D55	x	-	x	-	-		-	x

Table 17: Hitachi LCD Module Configuration

x: solder jumper set

-: no jumper set

*: jumper set if touch signals on pins 37-40

**: depends on desired scan direction

5.3 EDT LCD Module

You can connect many EDT LCDs with this module. A list with possible displays is shown below.

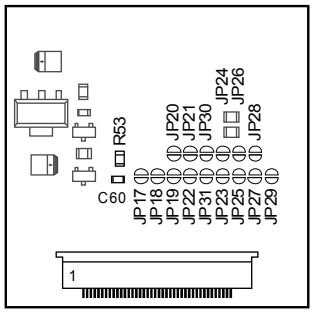
You cannot use this module with a PicoMOD with on-board LVDS interface.

Maximum VCFL input voltage on J19 is 8V.

J21		
Pin	Function	Remarks
1	GND	
2	GND	
3	VCFL	Directly connected to J19
4	VCFL	Directly connected to J19
5	VCFLON	
6	VDIM/PWM	0-3.3V backlight dimming voltage. Remove filter capacitor C60 for PWM signal (replace R53 with 0R if required).
7	nRESET	Configured with JP17, see Table 19 for configurations
8	B5	MSB
9	B4	
10	B3	
11	B2	
12	B1	
13	B0	LBS
14	GND	
15	G5	MSB
16	G4	
17	G3	
18	G2	
19	G1	
20	G0	LSB
21	GND	
22	R5	MSB
23	R4	

J21		
Pin	Function	Remarks
24	R3	
25	R2	
26	R1	
27	R0	LSB
28	CLK	
29	GND	
30	HSYNC	Configured with JP18, see Table 19 for configurations
31	VSYNC	Configured with JP19, see Table 19 for configurations
32	DE	Configured with JP20, see Table 19 for configurations
33	VLCD/GND	Configured with JP21/JP22, see Table 19 for configurations
34	VLCD/GND	Configured with JP30/JP31, see Table 19 for configurations
35	GND	
36	VLCD	
37	Y-/SDA	Configured with JP23/JP24 , see Table 19 for configurations. SDA with 2k2 pull-up to VLCD
38	X-/SCL	Configured with JP25/JP26, see Table 19 for configurations. SCL with 2k2 pull-up to VLCD
39	Y+/INT	Configured with JP27/JP28, see Table 19 for configurations
40	X+	Configured with JP29, see Table 19 for configurations

Table 18: J21 Display connector EDT LCD Module



J21

Figure 6: EDT LCD Module

Display Modules

Display	JP17	JP18/ JP19**	JP20 **	JP21	JP22	JP30	JP31	JP23/JP25/ JP27/JP29	JP24/JP26/ JP28
ET035080DH6	x	x	-	-	-	-	x	x	-
ET035080DM6	x	x	-	-	-	-	x	-	-
ET043080DH6	-	x	-	-	-	-	-	x	-
ET043080DM6	-	x	-	-	-	-	-	-	-
ETM043080DH6	-	x	-	-	-	-	-	-	x
ET050080DH6	x	x	-	-	-	x	-	x	-
ET050080DM6	x	x	-	-	-	x	-	-	-
ET057080DH6	x	x	-	-	-	-	-	x	-
ET057080DM6	x	x	-	-	-	-	-	-	-
ET057090DHU	x	x	-	*	*	-	-	x	-
ET070080DM6	-	x	-	*	*	-	-	-	-
ETM070080DH6	x	x	-	*	*	-	-	-	-

Table 19: EDT LCD Module Configuration

x: solder jumper set

-: no jumper set

*: depends on configuration

**: DE mode not configurable with this module

5.4 HDMI Module

The HDMI module provides a standard HDMI interface without audio signals. For possible resolutions see PicoMOD software documentation.

You cannot use this module with a PicoMOD with digital RBG interface.

J18		
Pin	Function	Remarks
1	TMDS D2P	
2	TMDS SHIELD	
3	TMDS D2M	
4	TMDS D1P	
5	TMDS SHIELD	
6	TMDS D1M	
7	TMDS D0P	
8	TMDS SHIELD	
9	TMDS D0M	
10	TMDS CLKP	
11	TMDS SHIELD	
12	TMDS CLKM	
13	CEC	1k pull-down to GND
14	NC	
15	SCL	
16	SDA	
17	GND	
18	+5V	
19	HOTPLUG	

Table 20: HDMI Module

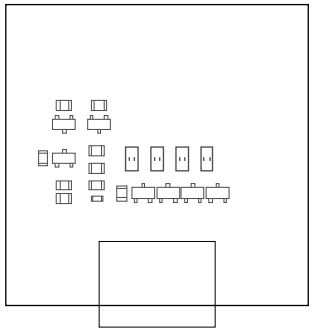


Figure 7: HDMI Module

5.5 Camera Module

The camera module is shipped on request only, because the camera must be supported by software. Ask our sales for a quote.

You use this module only with a PicoMOD with LVDS interface.

6 Electrical Data

Power supply +5V:	5V ±5%
Power supply VBAT:	see PicoMOD manual
Power supply VCFL:	5V-20V (VCFL circuit on base board/Legacy module/Hitachi module with Si2307)
	3V-8V (VCFL circuit on EDT module with Si2301)

The battery socket is for a CR2032 lithium coin cell.

Maximum and minimum voltage on VCFL depends on switching transistor used in VCFL circuit.
Maximum voltage must not exceed V_{GS} of transistor (Si2307: 20V, Si2301: 8V)
See transistor data sheet for additional information.
Minimum voltage depends on $R_{DS(on)}$ an power dissipation at input voltage.

7 Appendix

List of figures

Important Notice

The information in this publication has been carefully checked and is believed to be entirely accurate at the time of publication. F&S Elektronik Systeme assumes no responsibility, however, for possible errors or omissions, or for any consequences resulting from the use of the information contained in this documentation.

F&S Elektronik Systeme reserves the right to make changes in its products or product specifications or product documentation with the intent to improve function or design at any time and without notice and is not required to update this documentation to reflect such changes.

F&S Elektronik Systeme makes no warranty or guarantee regarding the suitability of its products for any particular purpose, nor does F&S Elektronik Systeme assume any liability arising out of the documentation or use of any product and specifically disclaims any and all liability, including without limitation any consequential or incidental damages.

Products are not designed, intended, or authorised for use as components in systems intended for applications intended to support or sustain life, or for any other application in which the failure of the product from F&S Elektronik Systeme could create a situation where personal injury or death may occur. Should the Buyer purchase or use a F&S Elektronik Systeme product for any such unintended or unauthorised application, the Buyer shall indemnify and hold F&S Elektronik Systeme and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, expenses, and reasonable attorney fees arising out of, either directly or indirectly, any claim of personal injury or death that may be associated with such unintended or unauthorised use, even if such claim alleges that F&S Elektronik Systeme was negligent regarding the design or manufacture of said product.